

## ATTACHMENT C

### SCOPE OF WORK TEMPLATE INSTRUCTIONS

The Scope of Work Template contains the framework to use to complete the Scope of Work. The template has instructions in blue type within < > that are to be deleted as it is filled out. The following are additional instructions for the items in the Scope of Work. At the end of these instructions, there are examples of Technical Tasks to provide guidance in drafting your own.

#### I. Technical Task List

Insert the Task numbers and Task names for the project. Put an "X" in the CPR column next to the Tasks that contain a Critical Project Review. Add additional rows as necessary.

#### II. Key Name List

List key parties within the agreement as described below. See Terms and Conditions for more information regarding key parties within the agreement.

**Key Personnel** are employees or consultants who are critical to the outcome of the project and are being paid with PIER funds. Key Personnel have expertise in the project field or experience that is not available from another source. Replacing these individuals may be difficult due to their expertise and may affect the outcome of the project. Since key personnel can come from various organizations working on the agreement, they should be written as follows to avoid confusion: "John Smith – Acme Company"

**Key Subcontractors** are contractors, subcontractors, or vendors who are critical to the outcome of the project and are being paid with PIER funds. Key Subcontractors have expertise in the project field or experience that is not available from another source. Replacing these individuals may be difficult due to their expertise and may affect the outcome of the project.

**Key Partners** are participants in the Project who are not receiving PIER funds and are not providing Match Funds but are integral to the outcome of the Project. Key Partners may be providing space, testing facilities, demonstration sites or may be a manufacturer or other implementer of the Project results. Individual key employees from the Key Partner organizations are listed under "Key Personnel." "Key Partners" are company names.

#### III. Glossary

Spell out each acronym used in the Scope of Work. Also include definitions of odd or unusual terms. Think about the document from the perspective of someone who does not work in the particular industry or discipline.

#### IV. Problem Statement

Describe the problem that this research will address in three to four paragraphs maximum.

A. Current state of technology: Describe the scientific and technological baseline, that is, the current state-of-the-art or the developmental status of the subject technology to be advanced. Include links to current and past efforts.

B. Past research efforts: Identify entities engaged in development of the subject technology. Discuss how your project enhances these efforts and is not duplicative or overlaps with other ongoing RD&D. Emphasize past advances that you have made in areas relevant to the proposed work.

Describe the deficiencies that exist for the subject technology. The deficiencies should illuminate the question of *why* the proposed project should be done.

C. Barriers: Identify and discuss the principal barriers, key unresolved issues, and knowledge gaps that hinder the development and widespread use of the resource or the products of the proposed research in California. Barriers may be grouped under the following categories, or additional categories that the Applicant deems appropriate:

- Scientific and technological – such as insufficient scientific understanding of relevant phenomena and processes, inadequate data acquisition technologies, low reliability, low power density, low energy density, lack of detailed engineering designs and design trade-off analyses, inadequate component development, high cost of fabrication techniques, insufficient field testing, or insufficient field demonstrations. Identify trade associations and others who are working with you to overcome this barrier.
- Market – such as inadequate consumer knowledge or limited system supply and maintenance infrastructure. Identify marketing partners and others who will work with you to overcome this barrier.
- Institutional – such as regulatory hurdles (e.g., atmospheric emission limitations) or lack of adopted standards. Identify regulatory agencies and others who will work with you to overcome this barrier.
- Environmental – such as H<sub>2</sub>S emissions, excessive noise, or groundwater contamination. Identify regulatory agencies and others who will work with you to overcome this barrier.

Explain why these barriers have not been addressed by the marketplace or by other institutions.

Explain why the barriers should be addressed at this time and why your project will succeed in overcoming these barriers. For example, place the proposed work into the context of the spectrum of barriers to widespread deployment and adoption.

## **V. Goals of the Agreement**

At the beginning of this section, complete the following sentence. Please be succinct.

The goal of this project is to ... *<Complete the sentence with a brief description of the goal(s) and how the goal(s) will be met. Goals can be technical, economic or social. Please be brief, two to three sentences maximum.>*

## **VI. Objectives of the Agreement**

The objectives of this project are to ... *<Complete this sentence with the objectives, which are things that will be measurable or knowable at the end of **this** project.>*

If the improvements that your project will make are not amenable to measurement, surrogate performance metrics that can be measured must be given. Describe the methodology or procedure that will be used at the completion of the project to determine if the performance metrics have been achieved.

List and describe technical or economic objectives, or desired conditions outside the project itself that will result from the success of the project.

## **VII. Task 1.0 Administration**

A. The administrative tasks must be included in every agreement and, except for Tasks 1.8 and 1.9, the language does not change. Do NOT write anything in these tasks except for Task 1.8 and 1.9.

B. Final Report Requirement: In addition to the requirements found in the Scope of Work Template (**Attachment B**) referring to the Final Report, certain additional content is required to appear in Final Reports. The information in the paragraph below applies to Applicants who will have successfully earned grant awards and gone on to perform demonstration projects:

Final Reports must describe how the use of PIER funds and working with the California Energy Commission has impacted the development, deployment and commercialization of the technology. For example: how the completion of this government-sponsored effort will allow the company to pursue additional government and federal funding opportunities, how working with the government and completing a demonstration project may help with the commercial acceptance of the product, how having an impartial third party evaluate the company's product(s) may help in future commercial growth, how managing government contracts demonstrates company accounting and accountability capabilities.

**VIII. Technical Tasks (Tasks 2 through n)**

This is the area in the Scope of Work where the technical work to be performed under this Agreement is set forth. The work effort should be divided into a series of logical, discrete and sequential tasks. Each task has the following components:

- Task Name
- The goal of this task is to ...
- The Recipient shall:
- Products

**A. The Goal**

The goal of this task is to ... *<Complete the sentence with a brief description of the goal(s). Please be brief, two to three sentences maximum.>*

**B. The Recipient shall ...**

List each individual **activity** with a separate bullet if there are more than two individual activities and begin each bullet with a verb to complete the sentence beginning with "The Recipient shall." Organize activities in the order in which they will occur. Use this section to describe the essential elements of the process you will use to complete the project. The contents of each product shall also be described in this section.

**For Example:****The Recipient shall:**

- Prepare the X Test Plan. This plan shall include, but is not limited to ...
- Submit the X Test Plan to the Commission Project Manager ...
- Conduct research in accordance with the X Test Plan.
- Prepare the X Test Results Report. This report shall include, but is not limited to, the following ...

Please note that if a project is for demonstration, or if a project involves testing, one of the tasks should be Test Plan preparation. The Test Plan should include considerations such as the number of hours of operation, the type of monitoring to be performed, the manner in which data will be validated, analyzed, and reported.

**C. Products:****Product(s):**

- *<Insert 1st product (name only)>*
- *<Insert 2nd product (name only)>*

Only the names of each product shall appear in the “Products” section. Use exactly the same name to identify a product (report, data set, project plan, etc.) in the activity and in the list of products.

Products incorporate the knowledge and understanding gained by performing the activities, and are submitted to the Energy Commission for review, comment and approval. Products include, but are not limited to, written reports that describe methods, test plans, results of testing, analysis of data, conclusions, and recommendations for future study, workshop agendas and summaries, description and photographs of equipment/product developed, summaries of advisory group meetings, computer software with written instructions for data input and use of the software, if intended for public or Energy Commission use, and production prototypes. The summaries of the Products should be sufficiently detailed to be of use to stakeholders and other researchers. The level of detail should be sufficient for an observer to assess whether the project objectives and goals have been successfully met.

#### **E. Task n-1 Market Transfer Activities**

Change the language as appropriate for your project.

### **IX. Examples of Different Types of Technical Products** *(These are examples, which you may modify for use in your project. You may create other products as needed, but please adhere to the patterns shown.)*

#### **1. Written Notification**

- Provide a Written Notification regarding \_\_\_\_\_, to the Commission Project Manager. *(Give it a unique name based on the content and the project.)* The letter shall include but is not limited to written documentation that the \_\_\_\_\_ is ready for *(testing, viewing, submission for certification, etc.)* and the date such *(testing, viewing, submission for certification, etc.)* shall begin, and shall include photographs.

**Product:** Written Notification regarding \_\_\_\_\_

#### **2. Test Plans**

- Prepare the \_\_\_\_\_ Test Plan. *(Give it a unique name, such as the Site A Test Plan. Test plans and testing procedures should be described in detail including factors such as instrumentation, data collection, data analysis, statistical analyses, and performance curves. Test results shall include relationships among performance, efficiency, emissions, temperature, pressure*

*and all other parameters that qualify and quantify the subject technology.)* The Test Plan shall include, but is not limited to:

- a description of the process to be tested;
- the rationale for why the tests are required;
- predicted performance based on calculations or other analyses;
- test objectives and technical approach;
- a test matrix showing the number of test conditions and replicated runs;
- a description of the facilities, equipment, instrumentation required to conduct the tests;
- a description of test procedures, including parameters to be controlled and how they will be controlled; parameters to be measured and instrumentation to measure them; calibration procedures to be used; recommended calibration interval; and maintenance of the test log;
- a description of the data analysis procedures;
- a description of quality assurance procedures;
- contingency measures to be considered if the test objectives are not met;
- *<add additional bullets specific to the project as needed>.*

**Product(s):**

- Draft \_\_\_\_\_ Test Plan
- Final \_\_\_\_\_ Test Plan

**3. Interim Reports** (*This applies to all product reports. Examples include task and subtask reports, test reports, data sets, databases and computer model development or application. Monthly reports and the final report are treated separately as shown in the Scope of Work.*)

- Prepare the \_\_\_\_\_ Report (*Give it a unique name, such as the ABC Test Report or 123 Database. If an interim report is based on earlier work in this project, then the titles should relate to each other. After the title insert a description of the product.*) This report shall include, but is not limited to, the following: (*List the elements of the report in separate bullets.*)

For example, if the Interim Report is a Test Report, use the following description:

The Test Report shall include, but is not limited to, the following:

- the Test Plan;
- test results;

- analysis;
- conclusions;
- recommendations;
- photographs as appropriate;
- *<add additional bullets specific to the project as needed>.*

For example, if the Interim Report is a Task or Subtask Report, use the following description:

The Task or Subtask Report shall include, but is not limited to, the following:

- the goal of the task or subtask;
- the description of the approach used;
- list of activities performed;
- description of the results and to what degree the goal was achieved;
- significant issues encountered and how they were addressed;
- a discussion of the implications regarding the success or failure of the results, and the effect on the budget and the overall objectives of the project;
- photographs as appropriate;
- *<add additional bullets specific to the project as needed>.*

**Product(s):**

- Draft \_\_\_\_\_ Test (Task, Database, etc.) Report
- Final \_\_\_\_\_ Test (Task, Database, etc.) Report

#### 4. Bills of Materials or Equipment Lists

- **Prepare a Bill of Materials (or Equipment List) for \_\_\_\_\_.** *(Give it a unique name.).* This document shall include but is not limited to:
  - a description of each item;
  - test protocols and codes applicable to each item;
  - cost estimates or bids for each item.

**Product:** Bill of Materials (or Equipment List) for \_\_\_\_\_

#### 5. Site Selection (optionally, this can be incorporated into a Test Plan)

- Determine Site Selection Details for the field test site, including but not limited to the following, and obtain Commission Project Manager approval:

- Type of site, i.e., <Sites for Wind Energy Storage Projects>
  - Residential
    - Specify type of dwelling: single family, multiple family including number of units, apartment, townhouse, etc.
    - Specify age of dwelling: new home construction, model home, existing home (indicate approximate age)
      - Commercial (specify warehouse, retail, office, etc.) <Sites for Wind Energy Storage Projects>
- Number of sites
- Location, i.e., climate zone, area, or city
  - Timing of testing (i.e., season or month), length and frequency of testing
- Agreement with site owner, to address issues such as:
  - Details of test, including dates, length of test
  - Site owner input and feedback on test conditions
  - Access to site
  - Insurance and indemnity
  - Contingency if damages are caused by test
  - Equipment installation and removal

Once the site is selected, Recipient shall enter into an agreement with the site owner and make a copy of the agreement available to the Commission Project Manager upon request.

**Product:** Written Notification of Site Selection